
In the Specification

The Petitions Office has granted the pending petition by the applicant to correct the claim to priority under 35 U.S.C. §119(e). A corrected declaration which identifies the correct filing date of the provisional application was filed with a previous response.

In light of the granting of the petition, the applicant's attorney respectfully requests that the following amendment be made to page 1 of the specification. After the title, and before the Technical Field of the Invention, please amend the first paragraph as follows:

This application claims priority from United States provisional patent application serial number 60/273,303 filed March 2, 2001, United States provisional patent application serial number 60/314,181 filed ~~[[March]]~~ August 16, 2001, and United States provisional patent application serial number 60/315,746 filed August 29, 2001.

Replacement pages 1 and 1a are provided.

The examiner has indicated that an incorrect substitute page was provided in the previous response. The examiner was correct, and replacement pages for pages 17 and 18 are provided reflecting the necessary changes.

The examiner has indicated that various brief descriptions on pages 3-4 require correction of the amounts from "phr" to "parts." Such correction has been made and replacement pages are provided.

The examiner has also indicated that FIG. 7 refers to data in Table VI. The description of FIG. 7 is thereby requested to be amended as follows:

FIG. 7 is a bar chart of percentage weight loss of various stabilizers and a phosphite ester blend of the present invention after 2 hours at 110°C illustrated in Table VI.

A replacement page is provided as requested.

In the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-41. (previously deleted)

42-82. (previously deleted)

83-102. (deleted)

103. (currently amended) An essentially toxic-metal free liquid additive composition for use as at least a partial replacement of toxic metal stabilizer additive compositions for use in vinyl-containing resins, wherein the essentially toxic-free composition consists essentially of:

(a) ~~at least one phosphite ester selected from the group consisting of~~

(i) ~~triaryl phosphites and C₁₋₉ alkyl substituted derivatives thereof,~~

(ii) ~~C₈₋₁₅ alkyl phosphites,~~

(iii) ~~mixed phosphites having at least one C₈₋₁₅ alkyl moiety and at least one aryl moiety therein, a combination of said moieties totaling three,~~

(iv) a C₁₀₋₁₅ alkyl bisphenol-A phosphites and C₁₋₉ alkyl substituted derivatives thereof;

(v) ~~poly and mono alkylene glycol phosphites,~~

(vi) ~~C₈₋₁₅ pentaerythritol phosphites,~~

(vii) ~~mono and di-C₈₋₁₅ alkyl p-cumyl phenol phosphites, and~~

(viii) ~~blends thereof;~~

(b) 0.05 to 0.4 mole percent a zinc additive; and

(c) 4 to 10 mole percent phosphorus wherein a molar ratio of P/Zn is from about 80:1 to 4:1.

104. (currently amended) The composition of claim 103 wherein

(a) ~~said zinc is from 0.1 to 0.3 mole percent; and~~ said ratio is from about 75:1 to 6:1.

(b) ~~said phosphorus is from 5 to 8 mole percent.~~

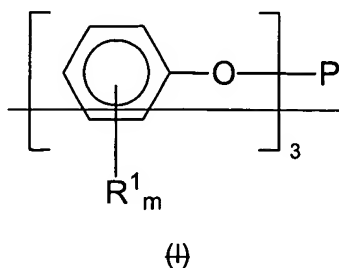
105. (currently amended) The composition of claim 104 wherein

(a) ~~said zinc is from 0.15 to 0.25 mole percent zinc; and~~ said ratio is from about 73:1 to 8:1.

(b) ~~said phosphorus is from 6 to 7 mole percent.~~

106. (currently amended) The composition of claim 105 wherein said ~~at least one phosphite ester is selected from the group consisting of~~

triaryl phosphites and C₁₋₉ alkyl substituted derivatives thereof of formula (I)

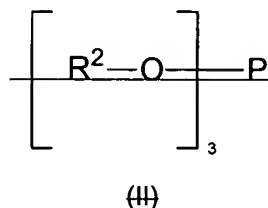


wherein

R¹ is independently selected from the group consisting of H and C₁₋₉ alkyl, and

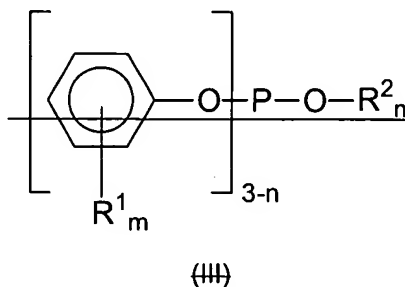
m is an integral value from 0 to 1 inclusive,

C₈₋₁₅ trialkyl phosphites of formula (II)



wherein

R² is selected from the group consisting of C₈₋₁₅ alkyl, mixed phosphites having at least one C₈₋₁₅ alkyl moiety and at least one aryl moiety of formula (III)



wherein

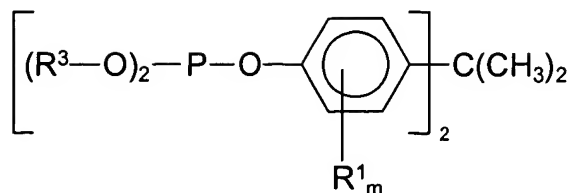
R¹ is as previously defined,

R² is as previously defined,

m is as previously defined, and

n is an integral value from 1 to 2,

C₁₀₋₁₅ alkyl bisphenol-A phosphites of formula (IV) and C₁₋₉ alkyl substituted derivatives thereof.



(IV)

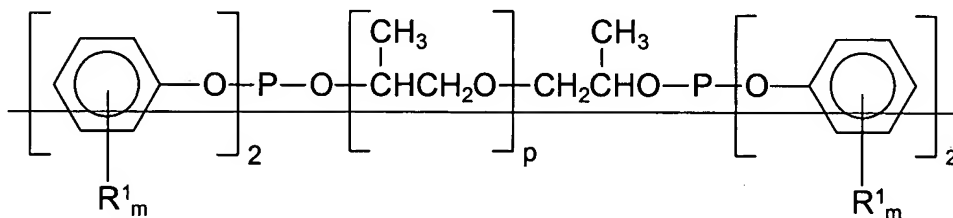
wherein

R¹ is independently selected from the group consisting of H and C₁₋₉ alkyl as previously defined;

R³ is C₁₀₋₁₅ alkyl; and

m is an integral value from 0 to 1 inclusive, as previously defined,

poly- and di-alkylene glycol phosphites of formula (V)



(V)

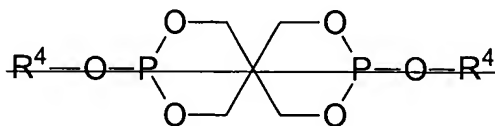
wherein

R¹ is as previously defined;

m is as previously defined; and

p is an integral value from 0 to 1 inclusive,

C₈₋₁₅ pentaerythritol phosphites of formula (VI) and C₁₋₉ alkyl substituted derivatives thereof,

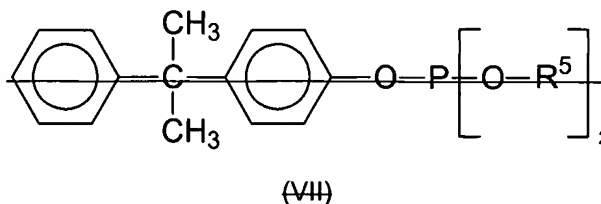


(VI)

wherein

R⁴ is the same as R¹, and

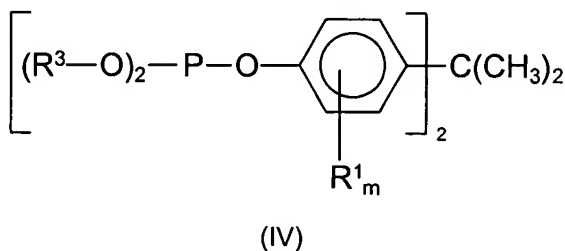
~~mono- and di- C₈₋₁₅ alkyl p-cumyl phenol phosphites and C₄₋₄ alkyl substituted derivatives thereof of formula (VII)~~



wherein

~~R⁵ is the same as R¹.~~

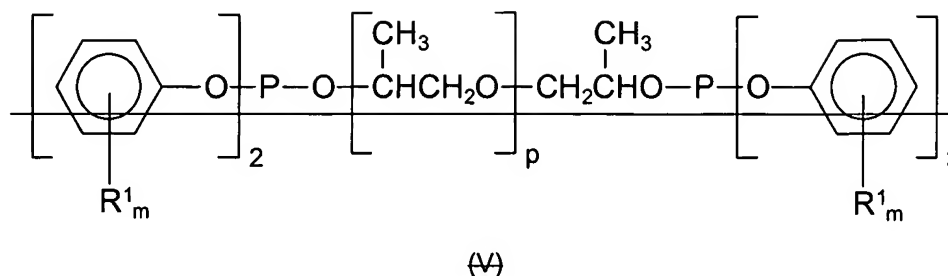
107. (previously presented) The composition of claim 106 wherein
 (a) a percentage weight loss of said composition as measured as a difference between a start and an end weight of said composition as measured after exposure to two hours at 110°C, is less than 1% by weight.
108. (previously presented) The composition of claim 107 wherein
 (a) a percentage weight loss is less than 0.5% by weight.
109. (canceled)
110. (canceled)
111. (canceled)
112. (canceled)
113. (currently amended) An additive composition for polyvinyl chloride resin which consists essentially of:
 (a) ~~at least one phosphite ester selected from the group consisting of~~
a C₁₀₋₁₅ alkyl bisphenol-A phosphites of formula (IV) and C₁₋₉ alkyl substituted derivatives thereof.



wherein

- R¹ is independently selected from the group consisting of H and C₁₋₉ alkyl,
 R³ is C₁₀₋₁₅ alkyl, and
 m is an integral value from 0 to 1 inclusive, and

~~poly- and di- alkylene glycol phosphites of formula (V)~~



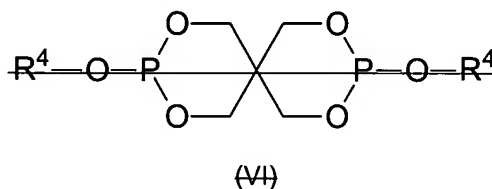
wherein

R^1 — is as previously defined;

m — is as previously defined; and

p — is an integral value from 0 to 1 inclusive,

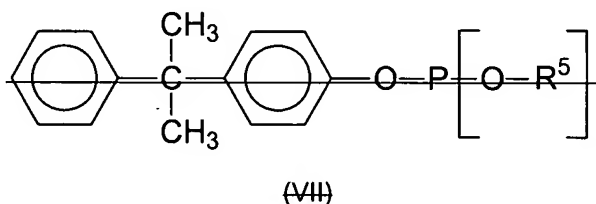
~~C₈₋₁₅ pentaerythritol phosphites of formula (VI) and C₁₋₉ alkyl substituted derivatives thereof,~~



wherein

R^4 — is the same as R^1 , and

~~mono- and di-C₈₋₁₅ alkyl p-cumyl phenol phosphites and C₁₋₄ alkyl substituted derivatives thereof of formula (VII)~~



wherein

R^5 — is the same as R^1 ; and

- (a) zinc wherein a molar ratio of P/Zn ranges from 80:1 to 4:1.
- 114. (previously presented) The composition of claim 113 wherein
 - (a) said molar ratio of P/Zn ranges from 75:1 to 6:1; and
 - (b) said zinc is a zinc carboxylate.
- 115. (previously presented) The composition of claim 114 wherein
 - (a) said molar ratio of P/Zn ranges from 73:1 to 8:1; and
 - (b) said zinc carboxylate is selected from the group consisting of zinc octoate, zinc 2-ethylhexoate, zinc hexoate, zinc neodecoate, zinc decoate, zinc dodecanoate, zinc isostearate, zinc oleate,

zinc stearate, zinc tallow fatty acids, zinc palmitate, zinc myristate, zinc laurate, and zinc benzoate.

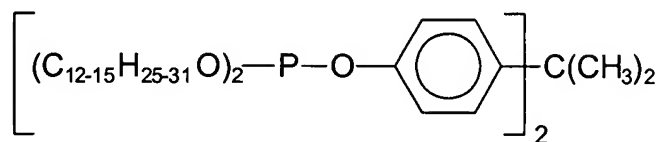
116. (canceled)

117. (canceled)

118. (currently amended) The composition of claim 117 wherein

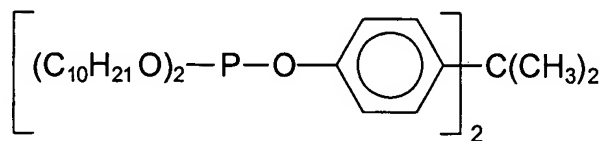
(a) said phosphite ester is selected from the group consisting of

C₁₂₋₁₅ bisphenol-A phosphite of formula (VIII) and



(VIII)

C₁₀ bisphenol-A phosphite of formula (IX)



(IX).

119. (canceled)

120. (canceled)

121. (canceled)

122. (canceled)

123. (canceled)

Remarks / Arguments & Status

The applicant's attorney thanks the examiner for the courtesy of the interview of 23 April 2004 wherein the outstanding issues of the application were discussed.

The application presently contains the following claims:

<i>Independent Claim #</i>	<i>Dependent Claim #s</i>	
83 (canceled)	84-92	(canceled)
93 (canceled)	94-102	(canceled)
103	104-108	(109 – 112 are canceled)
113	114-115, 118	(116 – 117, 119 – 123 are canceled)

Claims 83-102, 109-112, 116-117 and 119-123 are canceled in this amendment. Claims 103-106, 113 and 117-118 are amended. No claims are newly added. Support for the amended and newly added claims can be found with reference to the claims as previously submitted in light of the fact that the claims are being narrowed in conformity with applicant's initial species election.

37 C.F.R. §1.75(c) Claim objections

The examiner has objected to claims 106-118 with particular reference to subgenus (VI) and has stated that Markush R¹ which is defined as H or C₁₋₉ is not a subset of C₁₀₋₁₅. The applicant's attorney has amended the wording of the claims to indicate

C₁₀₋₁₅ alkyl bisphenol-A phosphites of formula (IV) and C₁₋₉ alkyl substituted derivatives thereof, to remove any ambiguity between the main chain designation and the substituents designations.

35 U.S.C. §102 Rejection & Responsive Arguments

There are no pending rejections based on this section.

35 U.S.C. §103 Rejection & Responsive Arguments

The examiner has rejected claims 103-115 and 117-118 under this section, subparagraph (a) as being unpatentable over *Valdeserri* (US 4,614,756) and/or *York* (US 4,116,926).

The examiner has provided a series of arguments in which he relies upon the fact that the transitional phrase "consisting essentially of" does not exclude the presence of alkyl tin mercaptides, since it was the conclusion of the examiner that its presence does not appear to materially affect the basic and novel characteristics of the claimed inventions.

While the applicant's attorney is unable to point to any example in the specification regarding the impact or non-impact of the addition of the required *Valdiserri* alkyl tin mercaptides, it is interesting to note as referenced by the examiner, that *Valdiserri* certainly teaches that "alkyl tin compounds are quite expensive, and that the art has continued to seek alternative, lower cost stabilizer and co-stabilizer systems, and to identify synergists and boosters for use with alkyl tin mercaptide stabilizers that would permit reducing the use level of the tin compound and thus lower the overall costs." (see col. 1, lines 21-28 of *Valdiserri*)

It should be noted that *Valdiserri* had all of the teachings of *York* '926, which taught the benefits of using either dialkylpentaerythritol diphosphites or polyalkyl bisphenol-A polyphosphates in combination with triisopropanolamine ("TIPA"). However, rather than simply eliminating TIPA from the formulation and substituting zinc (as occurred more than 30 years later in this pending application), *Valdiserri* added large amounts of alkyl tin mercaptides (albeit in somewhat lower quantities than typically used in rigid PVC

formulations). Certainly, *Valdiserri* had all of the teachings needed to come up with the invention of the applicants' but rather chose quite a different path.

As presently claimed, using the transitional phrase "consists of" has eliminated the bases of the rejection of the applicant, either using the *Valdiserri* '756 patent or in combination with *York* '926.

Request for Reconsideration

Applicant believes that independent claims 103 and 113 clearly define over the prior art and that the distinctions between the present invention and the prior art would not have been obvious to one of ordinary skill in the art. Additionally, all remaining dependent claims, by virtue of the dependency from associated independent claims, containing all of the limitations inherent therein, are felt to be patentable over the prior art by virtue of their dependency from independent claims which distinguish over the prior art of record. All pending claims are thought to be allowable and reconsideration by the Examiner is respectfully requested.

It is respectfully submitted that no new additional searching will be required by the examiner.

The applicant has amended the claims in a manner in which all of the technical objections and/or rejections have been overcome. The applicant has narrowed the scope of the claimed range of phosphites which are effective as *PhosBoosters* in this invention. Additionally, when only the additive is being claimed, the transition language "consisting of" is employed, which does exclude other elements which are present in any significant quantities. The fact that *PhosBoosters* can be used as a partial replacement to traditional PVC additive packages, is irrelevant to the patentability of the additive claims and the construction of the claim language. The position advanced by the examiner regarding the presence of organotin mercaptide in *Valdiserri* formulations should be rethought because the choice of the transitional phrase is outcome determinative.

Fee Determination Record

A fee determination sheet is attached for this amendment response. The Commissioner is hereby authorized to charge any additional fee required to effect the filing of this document to Account No. 50-0983.

Conclusion

It is respectfully submitted that all references identified by the examiner have been distinguished in a non-obvious way. If the examiner believes that a telephonic conversation would facilitate a resolution of any and/or all of the outstanding issues pending in this application, then such a call is cordially invited at the convenience of the examiner.

Respectfully Submitted,
Buckingham, Doolittle & Burroughs, LLP



Louis F. Wagner
LWagner@bdbl.com
Registration No.: 35,730

Buckingham, Doolittle & Burroughs, LLP
50 S. Main St.
P.O. Box 1500
Akron, Ohio 44309-1500
(330) 258-6453 (telephone)
(330) 252-5452 (fax)
Attorney Docket #: 47399.0015